

THE JOURNAL

OF

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

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EDITORIAL ROOMS, 29 WEST 39TH STREET NEW YORK

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THE JOURNAL is published by The American Society of Mechanical Engineers twelve times a year, monthly except in July and August, semi-monthly in October and November.

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The professional papers contained in The Journal are published prior to the meetings at which they are to be presented, in order to afford members an opportunity to prepare any discussion which they may wish to present.

The Society as a body is not responsible for the statements of facts or opinions advanced in papers or discussions. C55

THE JOURNAL
OF
THE AMERICAN SOCIETY OF
MECHANICAL ENGINEERS

VOL. 32

JUNE 1910

NUMBER 6

SPRING MEETING, ATLANTIC CITY, MAY 31-JUNE 3
PROGRAM

Tuesday afternoon and evening, May 31

Informal reunion of members in the parlors of the Marlborough-Blenheim.

Wednesday, June 1, 10 a. m.

PROFESSIONAL SESSION

Business meeting. Reports of Committees, Tellers of Election, New Business.

PAPERS ON MACHINE CONSTRUCTION AND OPERATION

THE SHOCKLESS JARRING MACHINE, Wilfred Lewis.

A COMPARISON OF LATHE HEADSTOCK CHARACTERISTICS, Prof. Walter Rautenstrauch.

THE STRENGTH OF PUNCH AND RIVETER FRAMES MADE OF CAST IRON, Prof. A. L. Jenkins.

IMPROVED METHODS IN FINISHING STAYBOLTS AND STRAIGHT AND TAPER BOLTS AS USED IN LOCOMOTIVES, C. K. Lassiter.

Wednesday afternoon and evening

The afternoon is left unassigned to give opportunity for sight-seeing. Roller chairs for the board walk will be available for the visiting members and guests through the courtesy of the Local Committee.

In the evening, entertainment on the Steel Pier has been provided by the committee.

Thursday, June 2, 10 a. m.

GAS POWER SECTION

BUSINESS MEETING AND REPORTS OF COMMITTEES.

PAPERS

A REGENERATOR CYCLE FOR GAS ENGINES USING SUB-ADIABATIC EXPANSION, Prof. A. J. Frith.

GAS ENGINES FOR DRIVING ALTERNATING CURRENT GENERATORS, H. G. Reist.

TWO PROPOSED UNITS OF POWER, Prof. Wm. T. Magruder.

OPERATING EXPERIENCES WITH A BLAST FURNACE GAS POWER PLANT, H. J. Freyn.

Thursday, 2 p. m.

PROFESSIONAL SESSION

MISCELLANEOUS PAPERS

THE MECHANICAL ENGINEER AND THE TEXTILE INDUSTRY, H. L. Gantt.

THE HYDROSTATIC CHORD, R. D. Johnson.

THE RESISTANCE OF FREIGHT TRAINS, Prof. Edw. C. Schmidt.

THE ELASTIC LIMIT OF MANGANESE AND OTHER BRONZES, J. A. Capp.

Thursday, 9 p. m.

Reception, followed by conferring of Honorary Membership on Rear-Admiral George W. Melville, U. S. N., Ret. A brief address will be made by Admiral Melville, and the evening will conclude with dancing and refreshments.

Friday, June 3, 10 a. m.

PROFESSIONAL SESSION

PAPERS ON POWER TRANSMISSION

IMPROVEMENTS IN LINESHAFT HANGERS AND BEARINGS, Henry Hess.

EXPERIMENTAL ANALYSIS OF A FRICTION CLUTCH-COUPLING. Prof. Wm. T. Magruder.

AN IMPROVED ABSORPTION DYNAMOMETER, Prof. C. M. Garland.

CRITICAL SPEED CALCULATION, S. H. Weaver.

For several years the Spring Meeting of the Society has been held in cities where there has been an opportunity of visiting places of interest and inspecting engineering enterprises, and the time of the members has been very fully occupied in taking advantage of such excursions as the generosity and coöperation of the local members have made possible. While these meetings have all been thoroughly enjoyed, it was thought that it would be a welcome change to hold a meeting at a resort where those attending would have more time for renewal of acquaintance and for personal intercourse, instead of devoting so much attention to matters outside of the interests directly related to the Society and its membership. The last meeting of this sort was the Spring Meeting in 1903 held at Saratoga. The present meeting at Atlantic City should be an equally pleasant occasion, since there is no place in the country better adapted for holding a convention and the meeting is held at a time which is one of the most delightful in which to spend a few days on the New Jersey shore.

The Marlborough-Blenheim, the Convention headquarters, is situated at the central point of Atlantic City's famous seven-mile board walk, and occupies a block and a half on the ocean front looking southward and 200 yards on the City Park looking eastward. It has a capacity of 1100 and makes many provisions for the comfort of its guests, including the open-air plaza and the solariums overlooking the ocean.

SPRING MEETING

The headquarters of the meeting will be the Marlborough-Blenheim, situated at the central point of the board walk. The registration office will be located in the hotel, on the board walk floor, and the professional sessions will be held in the solarium on the office floor.

The Local Committee, chosen from the vicinity of Philadelphia, under the chairmanship of James M. Dodge, Past-President, Am.Soc. M.E., and with Arthur C. Jackson as secretary, is making provision for the entertainment. Through the courtesy of this committee, roller chairs on the boardwalk will be available and the use of the golf course at Pleasantville has been secured. Admission to the piers will also be arranged.

A Ladies' Committee has been formed with Mrs. Charles Day as chairman and will be in attendance at the headquarters to receive the visiting ladies and make their stay in Atlantic City most pleasant. A Bureau of Information will also be maintained.

LOCAL COMMITTEE

REPRESENTATIVES OF THE PROFESSION IN PENNSYLVANIA AND
NEW JERSEYJAMES M. DODGE, *Chairman*ARTHUR C. JACKSON, *Secretary*

J. Sellers Bancroft	G. T. Gwilliam	F. R. Pleasonton
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Kern Dodge	Thomas C. McBride	J. A. C. L. deTrampe
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John Fritz	Henry G. Morris	Walter Wood
Harris R. Greene	John S. Muckle	J. E. Zimmerman
	John C. Parker	

MEETING IN ENGLAND

A letter of detailed information covering all matters relating to the English meeting has been issued to all who have signified their intention of being in attendance there and particulars can be secured from the Secretary on request, by all who may be interested.

The party leaving New York on the official steamship *Celtic*, Saturday, July 16, at 2 p.m., will arrive in Liverpool Monday morning, July 25. Passengers will have a few hours for recreation on shore and will leave at noon by special train, for Birmingham, where they will be officially received by the Institution of Mechanical Engineers.

The Committee of the Society in charge of the arrangements is composed of Ambrose Swasey, *Chairman*, Charles Whiting Baker, *Vice-Chairman*, W. F. M. Goss, Geo. M. Brill, John R. Freeman, and George Westinghouse, Wm. H. Wiley, F. R. Hutton, Willis E. Hall, Calvin W. Rice, *ex-officio*.

PROVISIONAL OUTLINE OF MEETINGS

BIRMINGHAM PROGRAM

Monday, July 25

Afternoon.—Arrival in Birmingham.

Tuesday, July 26

Morning.—The Right Hon. the Lord Mayor of Birmingham and the Members of the Local Committee will receive and welcome the President, GEORGE WESTINGHOUSE, Esq., and the Officers and Members of the American Society of Mechanical Engineers, and the President, JOHN A. F. ASPINWALL, Esq., and the Council and Members of the Institution of Mechanical Engineers.

READING AND DISCUSSION OF PAPERS.

LUNCHEON in the Town Hall.

Afternoon.—Visits to Stratford-on-Avon, Worcester, Gloucester, or Bournville; and local Works.

Evening.—Garden Fête.

Wednesday, July 27

Morning.—READING AND DISCUSSION OF PAPERS.

LUNCHEON in the Town Hall.

Afternoon.—Visits to the University and local Works.

Evening.—RECEPTION in the Council House, by invitation of the Right Hon. the Lord Mayor of Birmingham.

Thursday, July 28

Visits to Works in Coventry and Rugby; also to Warwick, Leamington, Kenilworth, or Lichfield.

LONDON PROGRAM

Thursday, July 28

Afternoon.—Arrival in London.

Evening.—Conversazione at the Institution.

Friday, July 29

Morning.—PAPERS ON ELECTRIFICATION OF RAILWAYS.

Afternoon.—Garden Parties at private houses.

Evening.—INSTITUTION DINNER in the Connaught Rooms, Freemason's Hall, Great Queen Street, W. C. (Including Ladies.)

Saturday, July 30

Morning and Afternoon.—Excursion by rail and river to WINDSOR and HENLEY (by invitation).

Evening.—Reception at the Garden Club in the Japan-British Exhibition at the White City.

SOCIETY NOTES

MEETING IN ST. LOUIS, MAY 27

The monthly meeting of the Society in St. Louis, originally announced for May 14, is to be held on May 27 at the Engineers' Club of St. Louis. The paper by Prof. Edw. C. Schmidt on Freight Train Resistance, published in The Journal for May, will be presented.

BOSTON MEETING, APRIL 27

At the meeting of the Society in Boston, April 27, in which the Boston Section of the American Institute of Electrical Engineers and the Boston Society of Civil Engineers coöperated, the paper on The Testing of Water Wheels after Installation, by Prof. C. M. Allen, Mem.Am.Soc.M.E., was presented by the author. The paper was published in the April number of the Journal. The speaker was introduced by Prof. I. N. Hollis, Chairman of the Boston Committee. Slides were shown in connection with the paper, and there was discussion by R. A. Hale, of the Essex Water Power Company, John C. Parker, Mem.Am.Soc.M.E., Prof. Dwight Porter, Prof. George E. Russell, and Prof. H. K. Barrows, of the Massachusetts Institute of Technology, Henry D. Jackson of Boston, and Henry C. Daggett, Mem.Am.Soc.M.E.

ENGINEERS LICENSE COMMISSION

The introduction in the New York Assembly of a bill requiring certain classes of practising engineers to pass examinations and have licenses as a condition of practicing their profession, led the Council to appoint a special committee to investigate this matter and advise what action, if any, the Society should take. At a meeting of this committee on April 27, resolutions were adopted expressing the opinion that any legislation affecting the rights and status of engineers could be most wisely originated by conferences between legislators and representatives of the national engineering societies. It was also voted to request those having in charge this legislation, to postpone action until after the Spring Meeting of the Society at Atlantic City, and to have the subject brought up for

discussion there. The Council was also requested to appoint a committee of five to report upon any proposed legislation affecting the interests of members of the engineering profession.¹

PRESENTATION OF MEDAL TO DR. C. J. H. WOODBURY

The association medal of the National Association of Cotton Manufacturers was awarded to Dr. C. J. H. Woodbury, Mem.Am.Soc.M.E., at the annual meeting of the association in Boston, April 27 and 28, 1910, in recognition of his work on the Bibliography of the Cotton Manufacture, and other services for the betterment of the industry. This medal, which was established in 1899, is awarded under very broad conditions that may include the author of any paper, a designer, either in mill construction or equipment, or of a process either of manufacturing or of finishing cotton goods. It has been given outside of the membership, although a member has generally been the recipient.

CORRECTION IN TRANSACTIONS, VOL. 26

The Forcing Capacity of Fire Tube Boilers by F. W. Dean, Transactions, Vol. 26, p. 93. in table, Par. 6, the last six items refer to fire-tube boilers instead of water-tube boilers.

CORRECTION IN TRANSACTIONS, VOL. 29

Ball Bearings, by Henry Hess, Transactions, Vol. 29, p. 447, caption of Fig. 14, Relation of Compression and Load for the Three Tests, Item 2 should read:

"2 balls $\frac{5}{8}$ -in. diameter and flat disc. Compression according to Hertz $\frac{\delta}{2} = 0.0000805 \sqrt[3]{P^2}$ "

STUDENT BRANCHES OF THE SOCIETY

STANFORD UNIVERSITY

The Stanford Mechanical Engineering Society, affiliated with The American Society of Mechanical Engineers, held its regular meeting on April 6, when Prof. Harris J. Ryan, Mem.Am.Soc.M.E., gave an interesting talk on the Los Angeles aqueduct, outlining its course of construction and showing the possible utilization of available power sites. A business meeting was held on April 20.

UNIVERSITY OF MAINE

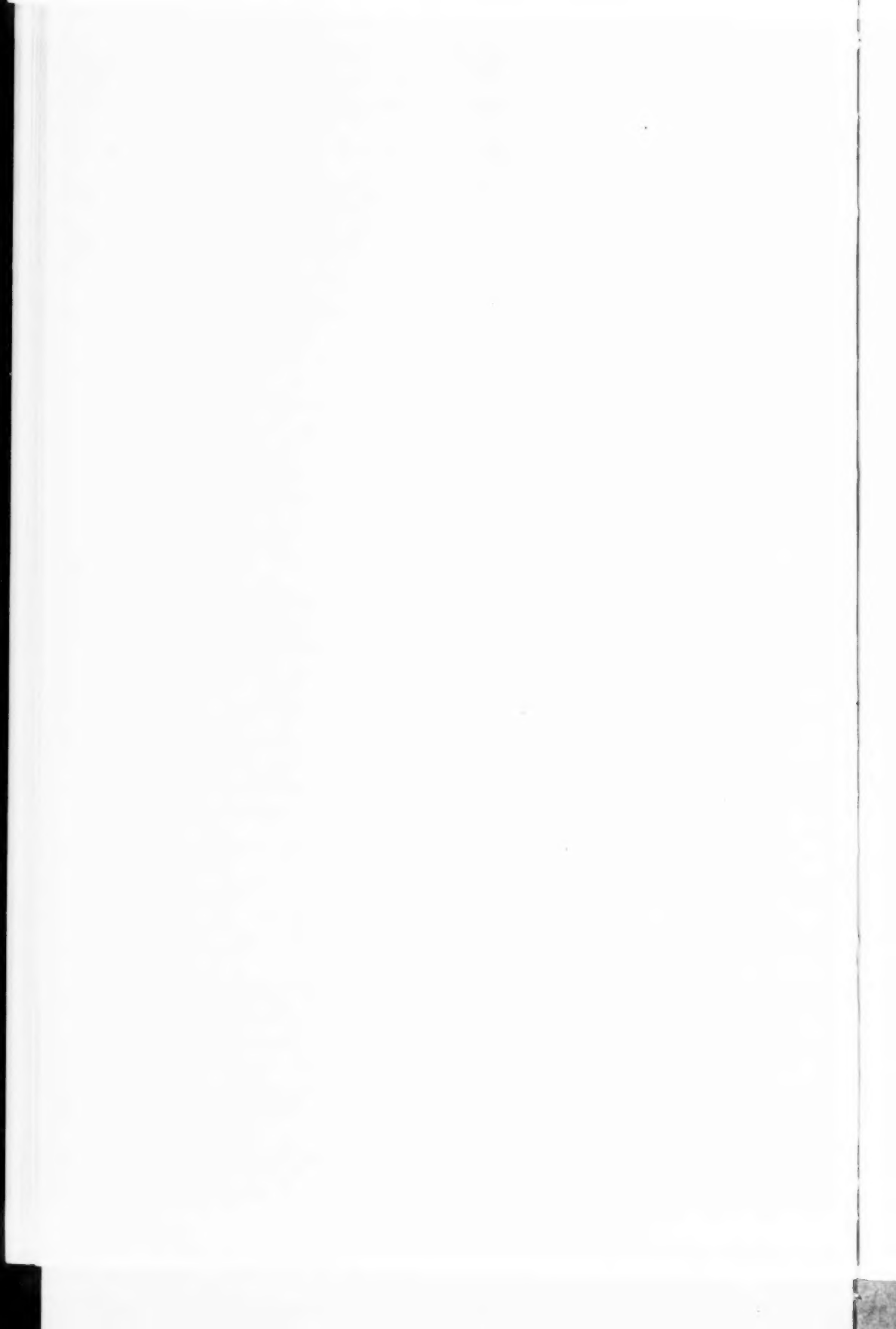
Two papers were presented at the meeting of the student branch of the University of Maine on April 27: The Electric Car Control, by G. B. Chapman, being in the main a description of the hand and air-brake systems as used on electric cars, and The Modern Locomotive, by C. G. Cummings (1910), briefly describing the historical development, and discussing the different types of modern locomotives in use at present.

PENNSYLVANIA STATE COLLEGE

A meeting of the Pennsylvania State College student branch was held on April 28 and three papers were presented, on Applications of Refrigeration and the Manufacture of Artificial Ice, by Guy W. Jacobs (1910). The Different Processes of Mechanical Refrigeration, by George O. Weddell (1910), and The Design of a Cold Storage Plant, by Wm. R. Mollison (1910).

DEATH OF WALTER CRAIG KERR

Announcement is made of the death of Walter Craig Kerr, May 8, 1910, at Rochester, Minn. An account of his life will appear in an early number of the Journal.



OPERATING EXPERIENCES WITH A BLAST FURNACE GAS POWER PLANT

BY HEINRICH J. FREYN

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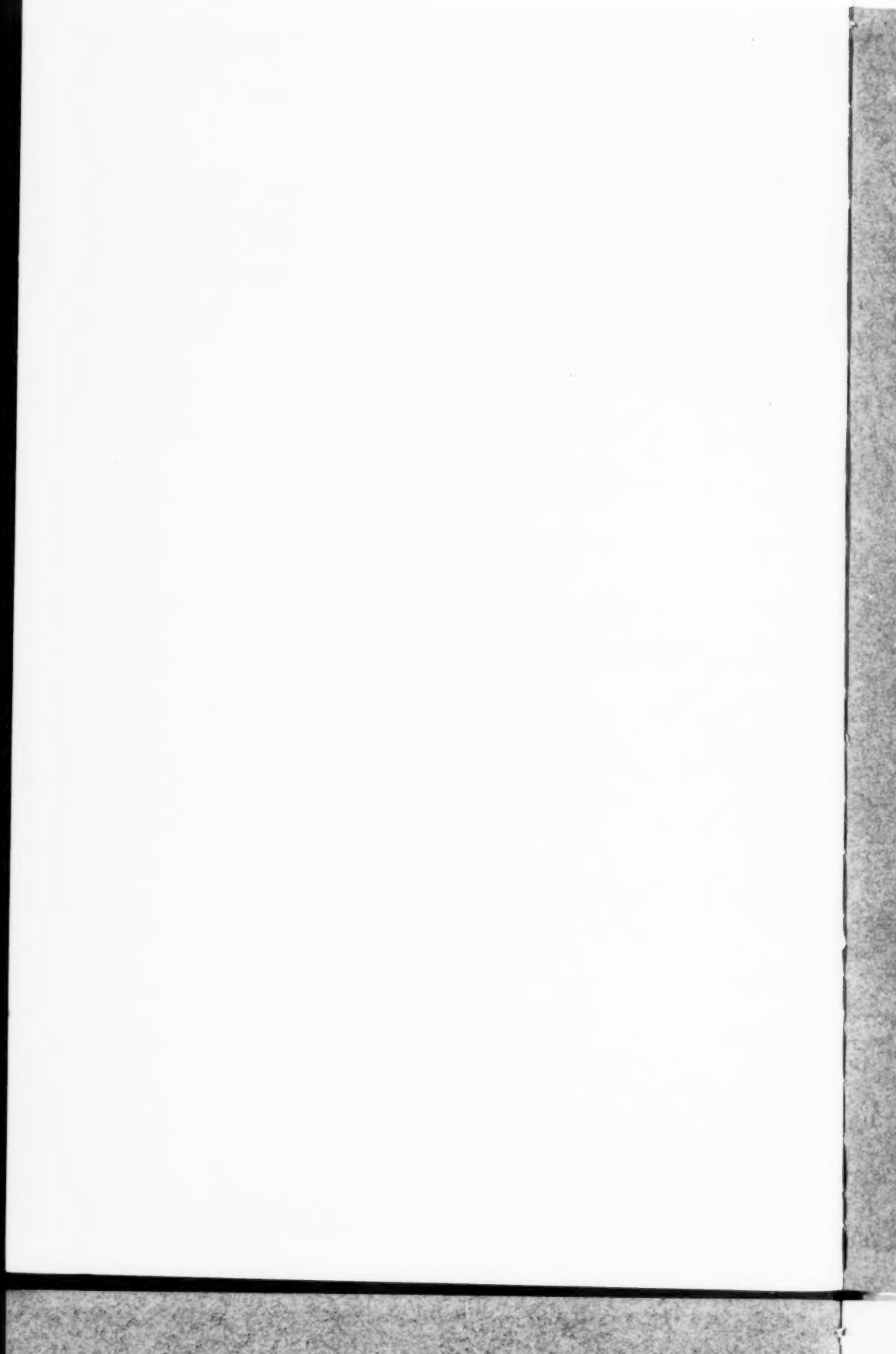
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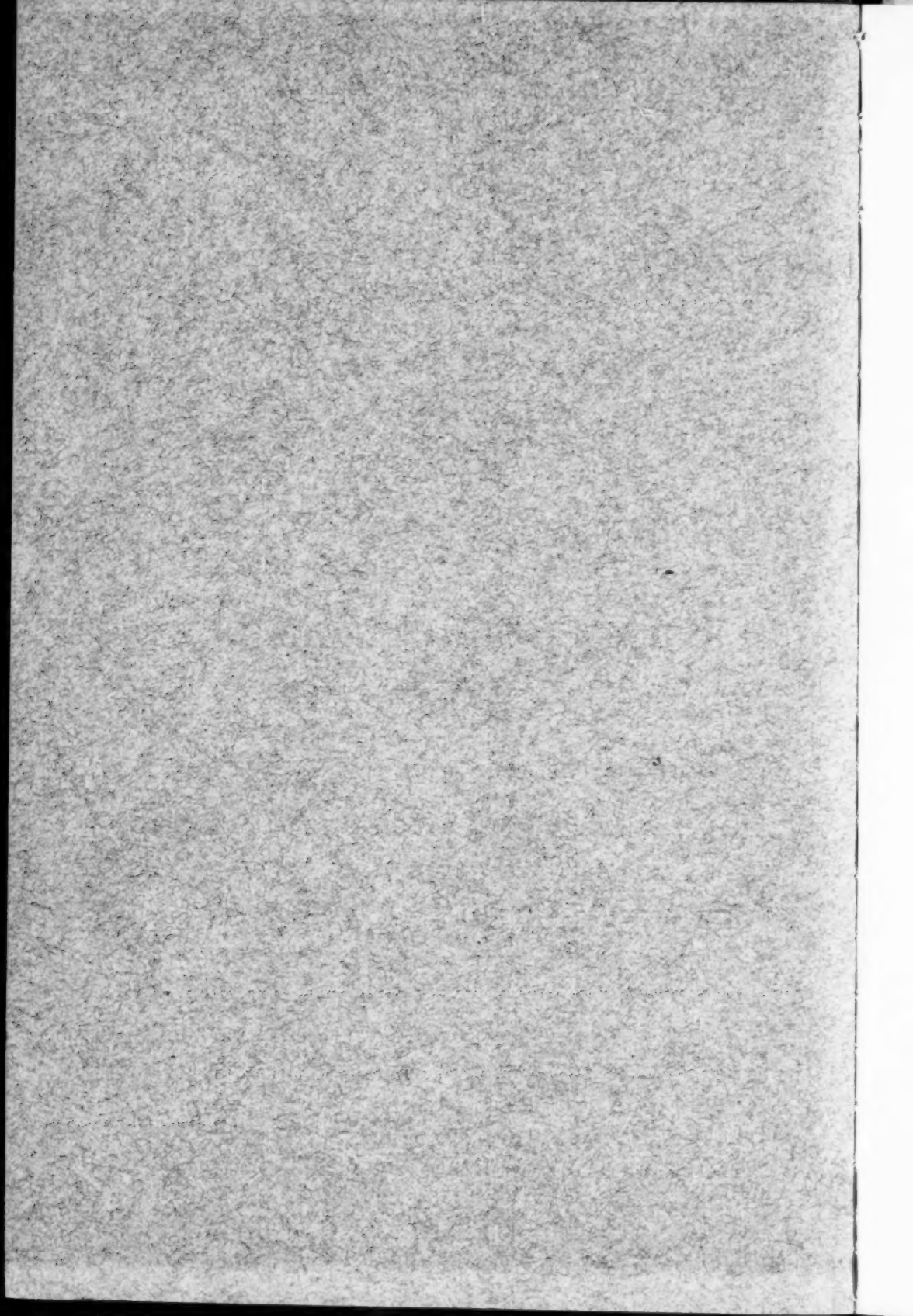
THE AMERICAN SOCIETY
OF MECHANICAL ENGINEERS

CONTAINING
THE PROCEEDINGS



JUNE 1910

SPRING MEETING, ATLANTIC CITY, MAY 31 TO JUNE 5
MEETING IN ENGLAND, JULY 26 TO 29

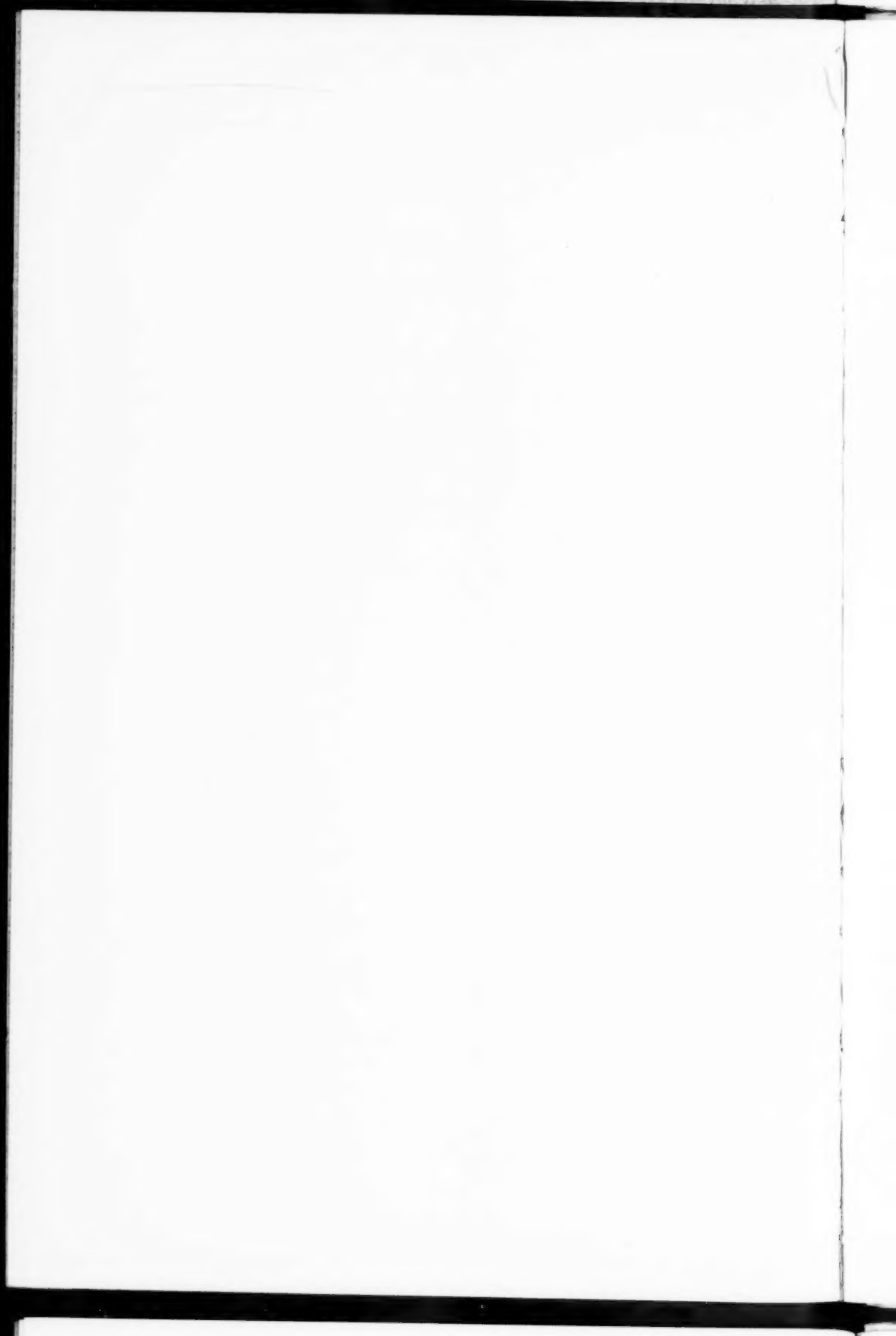


ADVERTISING SUPPLEMENT

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Machine Shop Equipment

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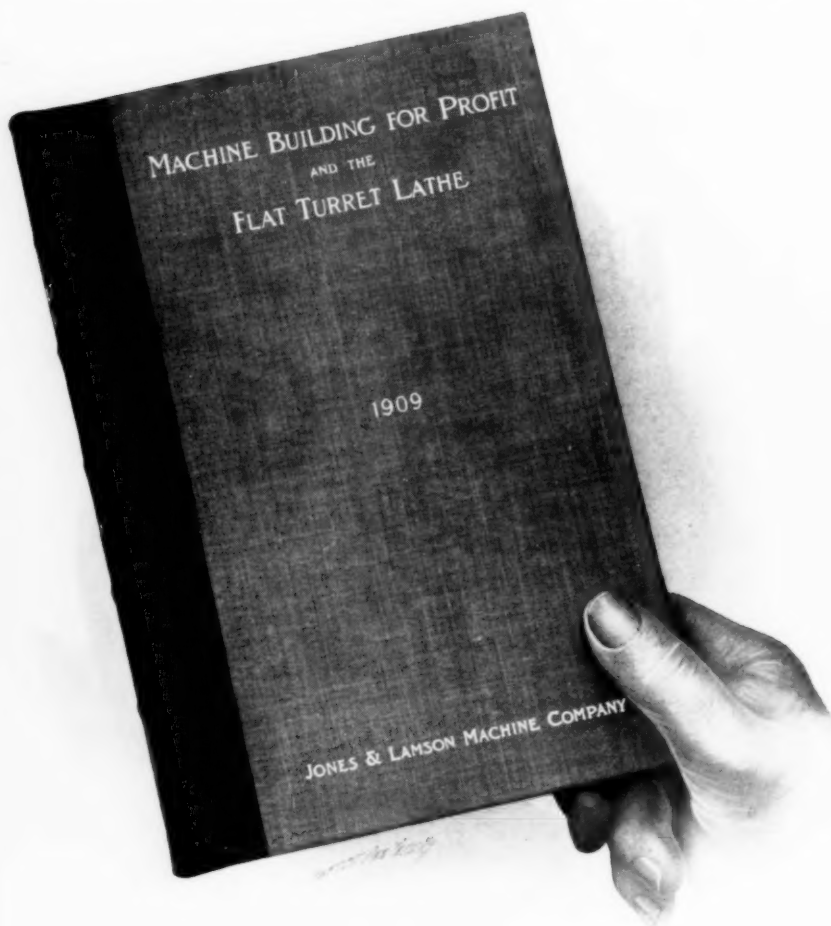
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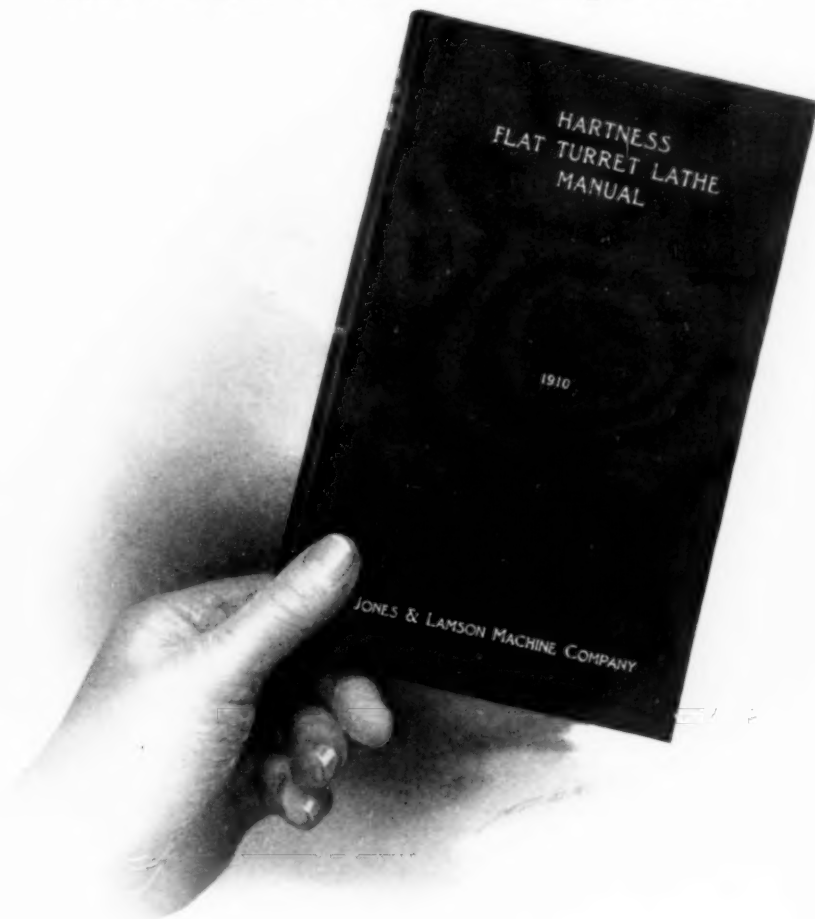
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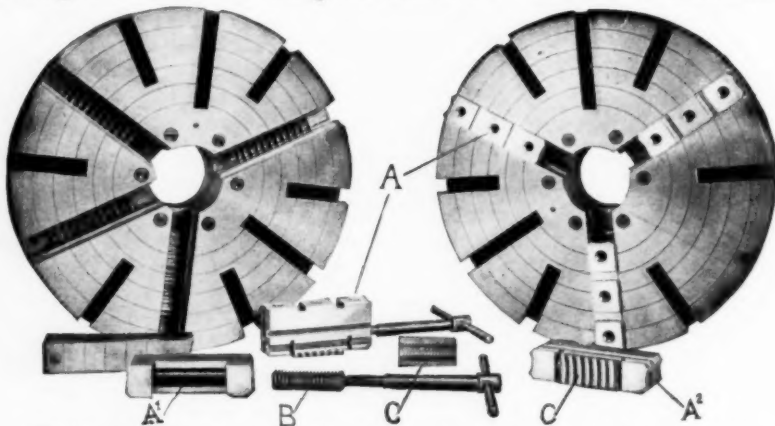
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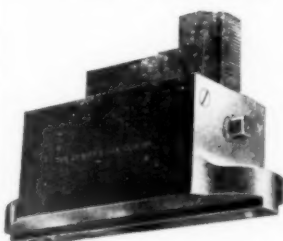
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Shop Management

Papers read before

The American Society of Mechanical Engineers from 1890 to 1908

The Society has a limited number of copies of papers on Shop Management which have been presented before it. Orders will be filled until the supply is exhausted.

Vol.	No.		Price List
19—	767	Accurate Cost-Keeping System, H. M. Norris.....	\$0.20
23—	928	Bonus System of Rewarding Labor, H. L. Gantt.....	.20
8—	239	Capital's Need for High-Priced Labor, W. E. Part- ridge20
24—	998	Drawing Office Equipment, John McGeorge20
5—	143	Drawing Office System, H. R. Towne.....	.10
24—	965	Gift Proposition for Paying Workmen, F. Richards..	.20
24—	1002	Graphical Daily Balance in Manufacture, H. L. Gantt.	.20
25—	1012	Is Anything the Matter with Piece Work? F. Richards	.20
24—	1001	Machine Shop Problem, C. Day.....	.20
18—	711	Method of Determining Selling Price, H. M. Lane..	.20
18—	739	Method of Shop Accounting, H. M. Lane.....	.10
25—	1011	Modifying System of Management, H. L. Gantt....	.10
16—	647	Piece Rate System, F. W. Taylor.....	.30
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8—	256	Problem in Profit Sharing, Wm. Kent.....	.30
25—	1040	Rational Basis for Wages, H. Emerson.....	.10
24—	1003	Shop Management, F. W. Taylor.....	.90
7—	206	Shop Order System of Accounts, H. Metcalfe.....	.40
9—	287	Short Way to Keep Time and Cost, H. L. Binsse...	.10
25—	1010	Slide Rules for the Machine Shop, C. G. Barth.....	.20
27—	1115	History of a System of Shop Management, J. M. Dodge10
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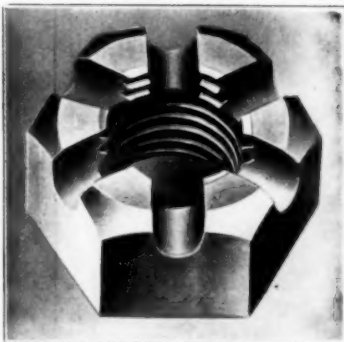
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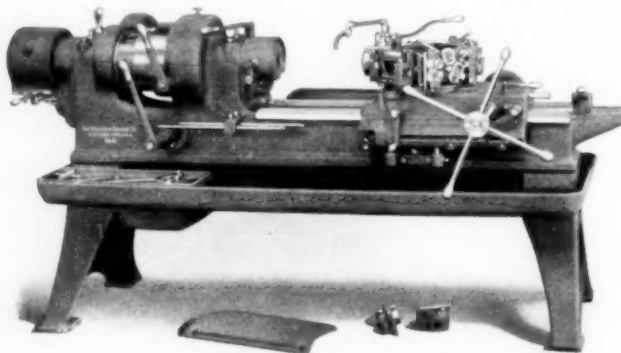
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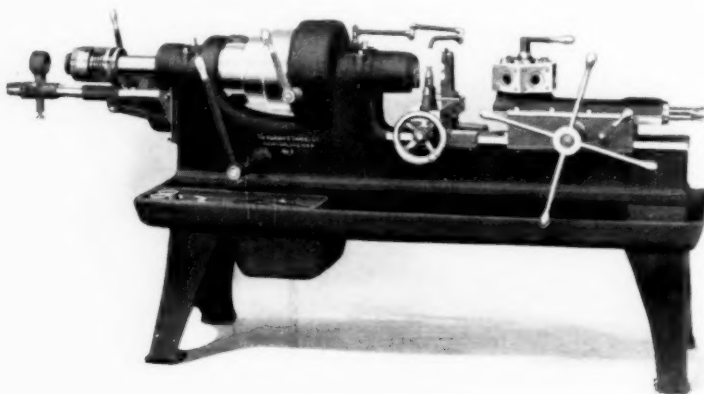
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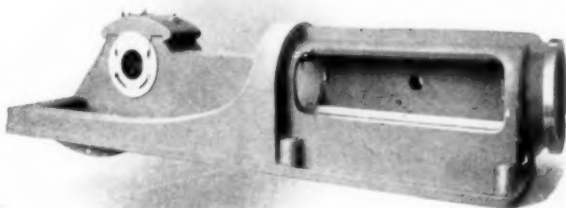
SECTION 2

Power Plant Equipment

Machine Shop Equipment	-	-	-	-	-	Section 1
Power Plant Equipment	-	-	-	-	-	Section 2
Electrical Equipment	-	-	-	-	-	Section 3
Hoisting and Conveying Machinery.	Power Transmission	-				Section 4
Engineering Miscellany	-	-	-	-	-	Section 5
Directory of Mechanical Equipment	-	-	-	-	-	Section 6

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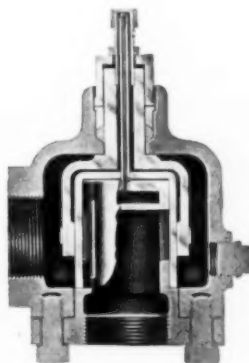
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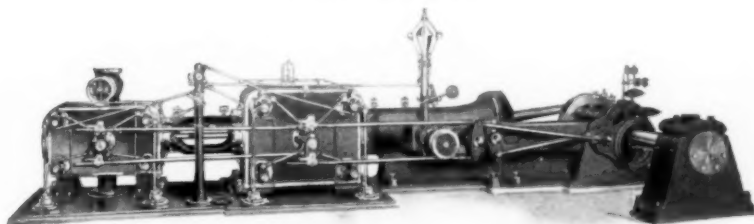
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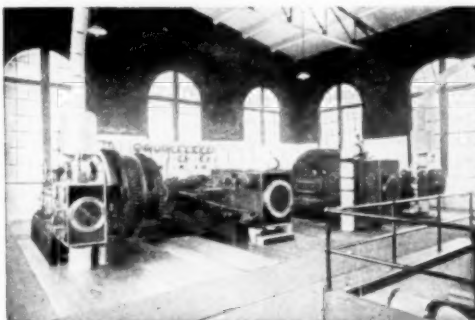
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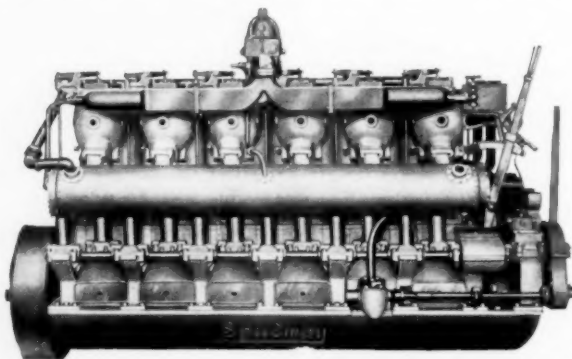
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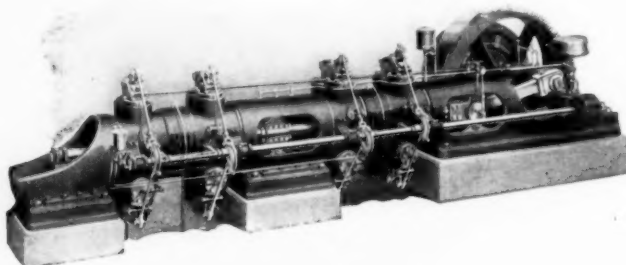
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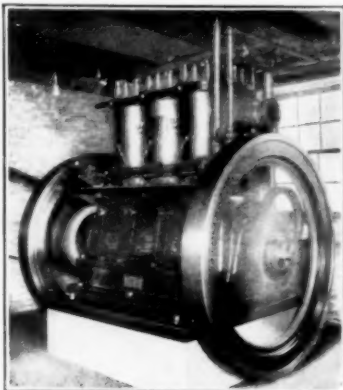


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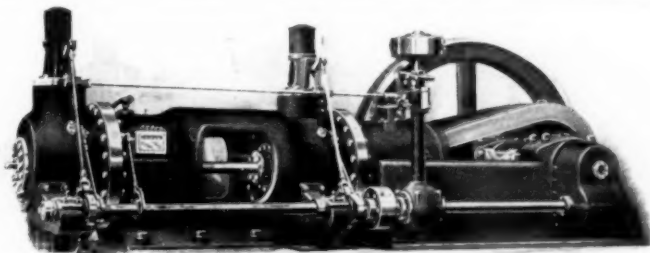
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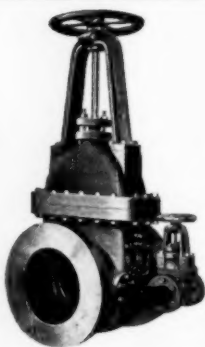
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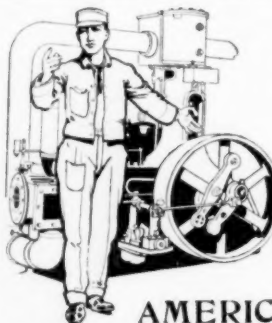
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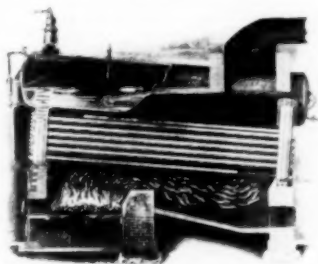
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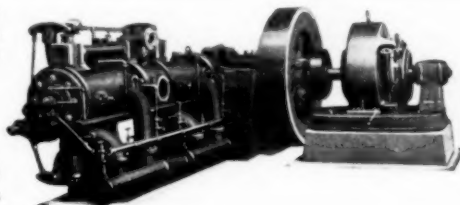
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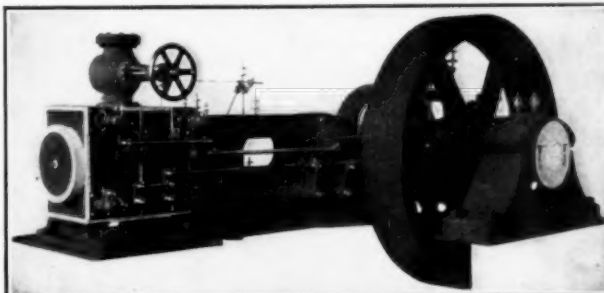
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SECTION 3

Electrical Equipment

Machine Shop Equipment	-	-	-	-	-	Section 1
Power Plant Equipment	-	-	-	-	-	Section 2
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Hoisting and Conveying Machinery.	Power Transmission	-				Section 4
Engineering Miscellany	-	-	-	-	-	Section 5
Directory of Mechanical Equipment	-	-	-	-	-	Section 6





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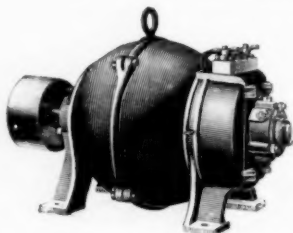
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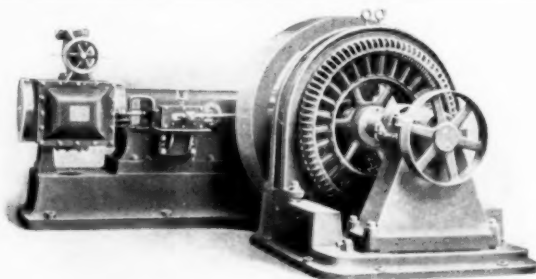


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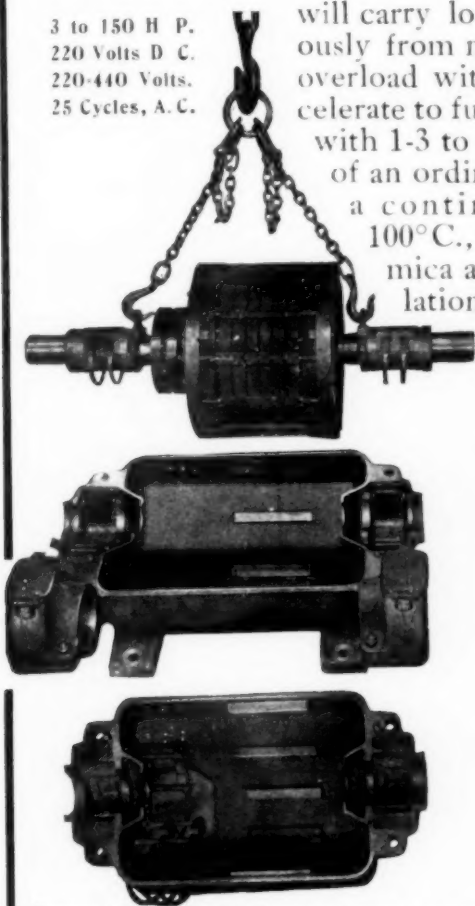
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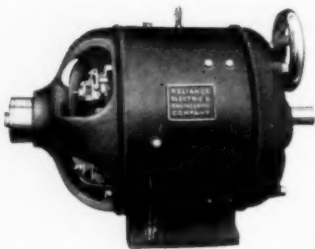
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Die Gasmotorentechnik. Vols. 1-5, 6. Nos. 1-9.

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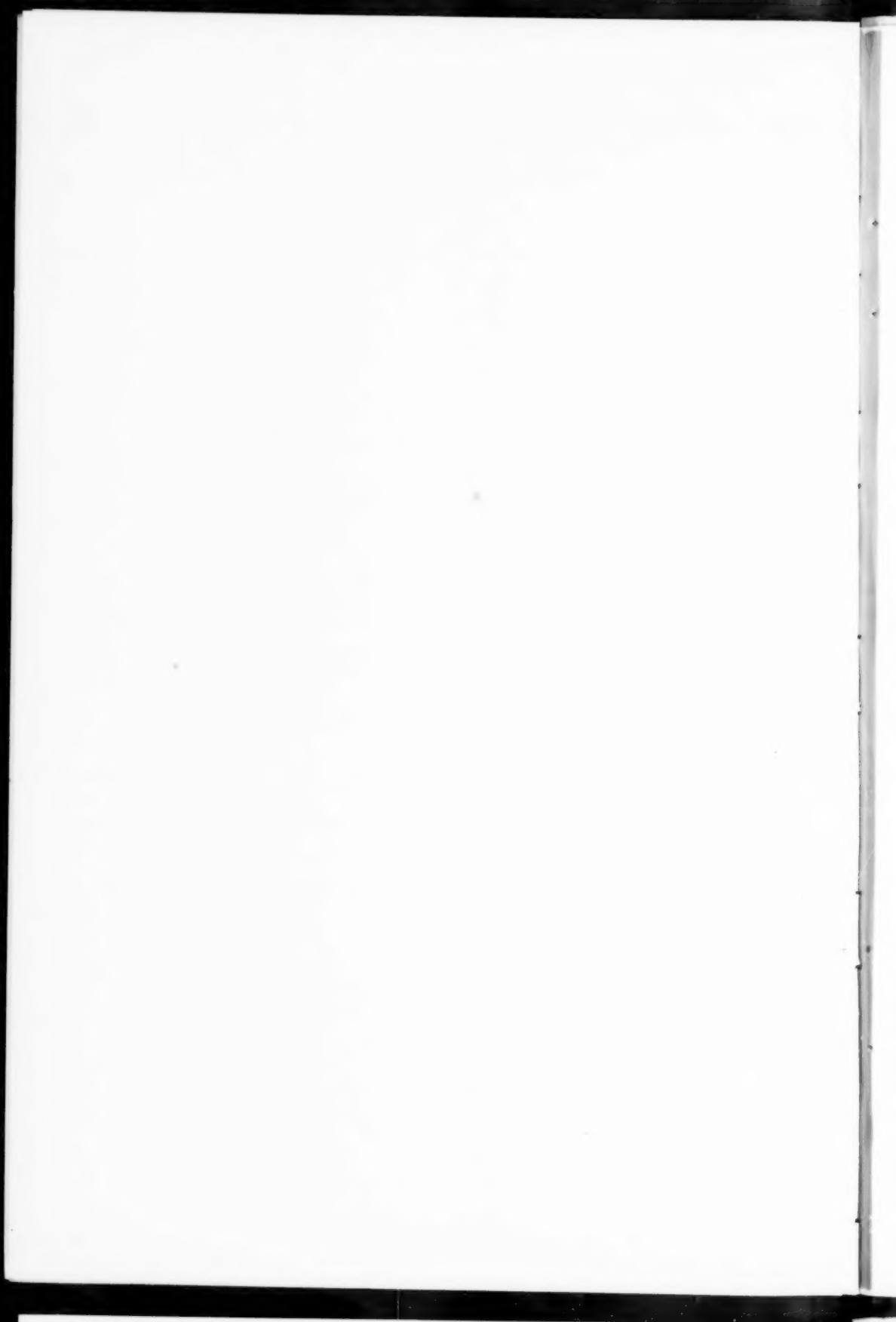
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SECTION 4

Hoisting and Conveying Machinery Power Transmission

Machine Shop Equipment	-	-	-	-	-	Section 1
Power Plant Equipment	-	-	-	-	-	Section 2
Electrical Equipment	-	-	-	-	-	Section 3
Hoisting and Conveying Machinery. Power Transmission	-					Section 4
Engineering Miscellany	-	-	-	-	-	Section 5
Directory of Mechanical Equipment			-	-	-	Section 6



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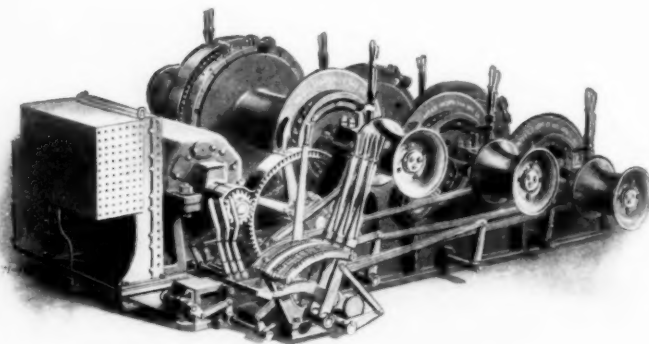
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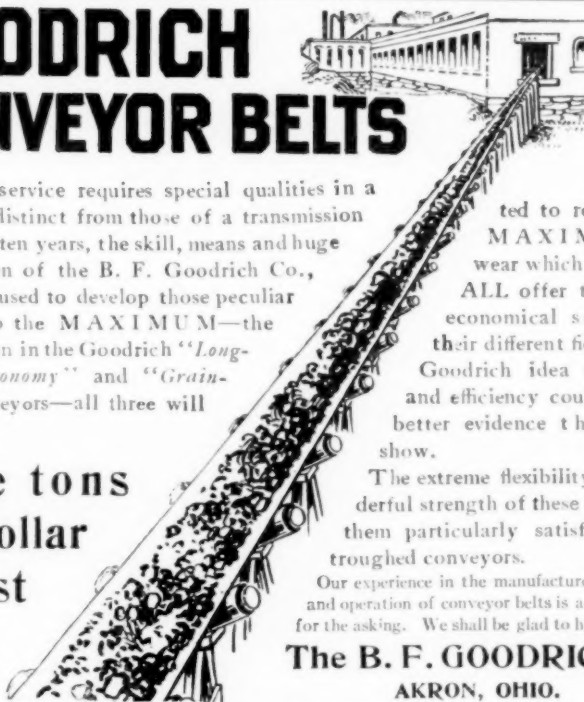
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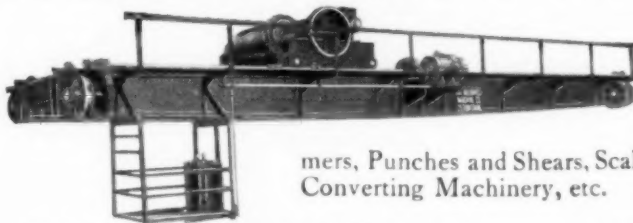
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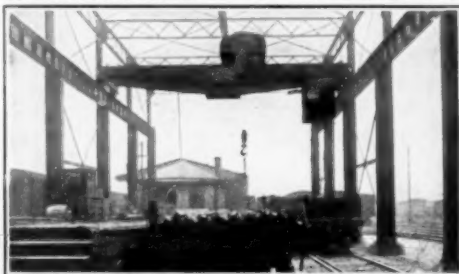
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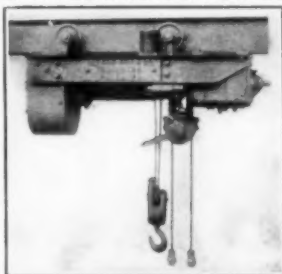
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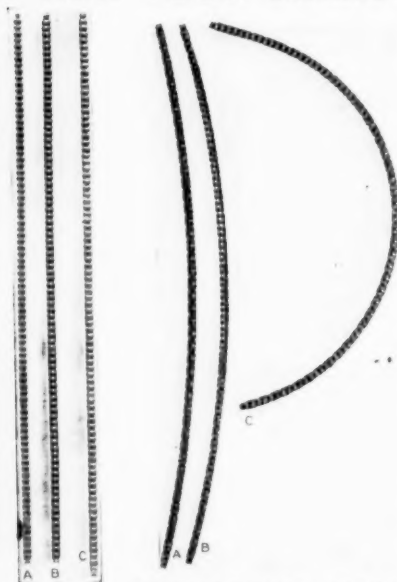
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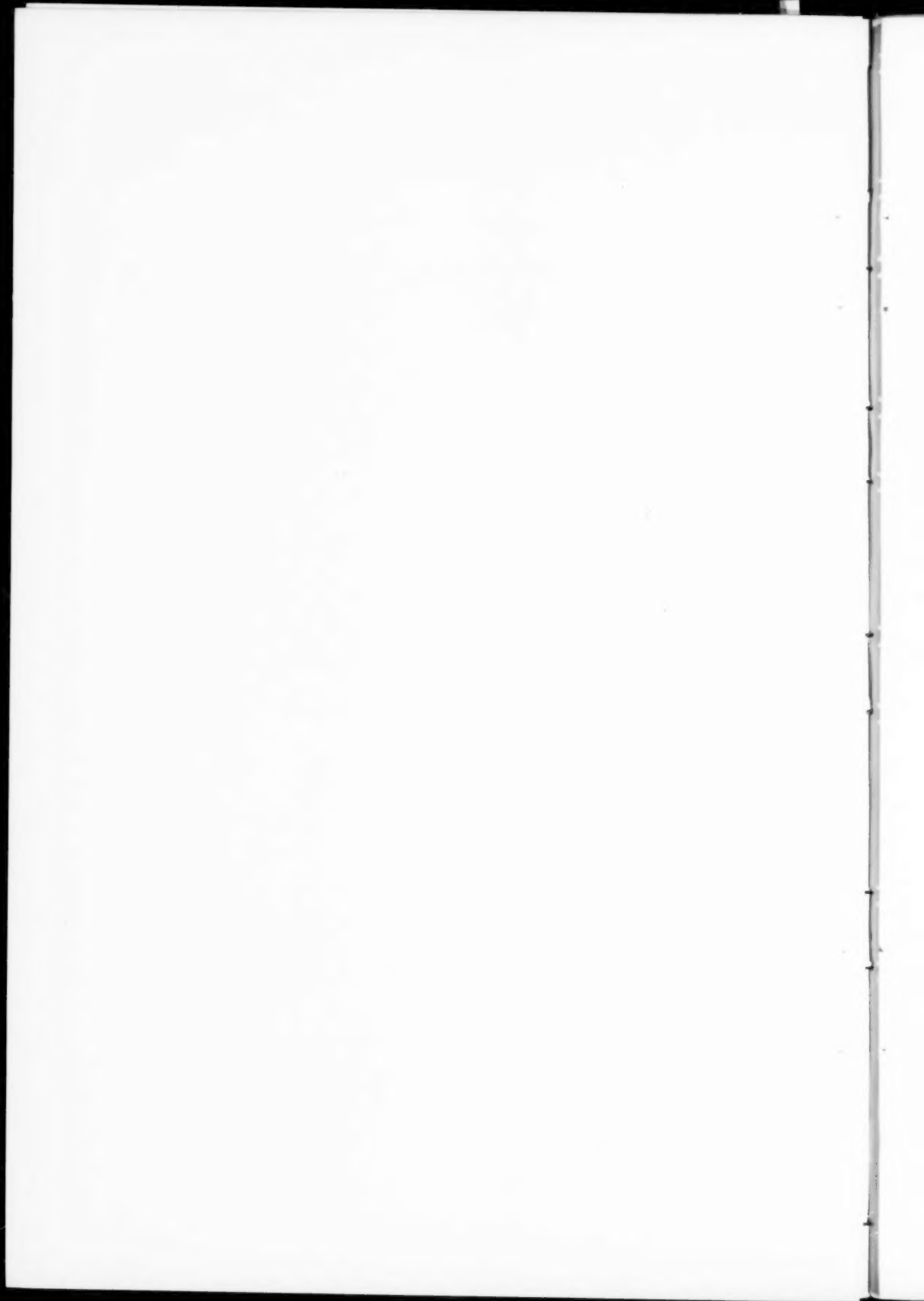
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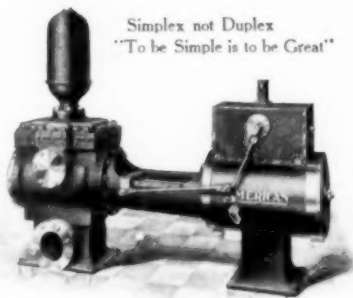
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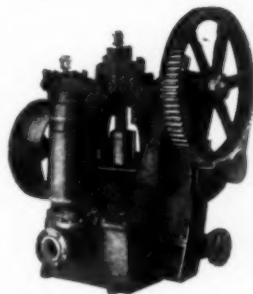
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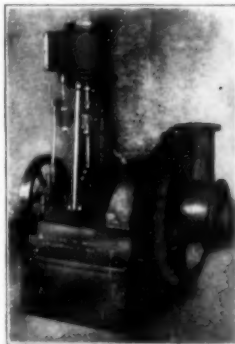
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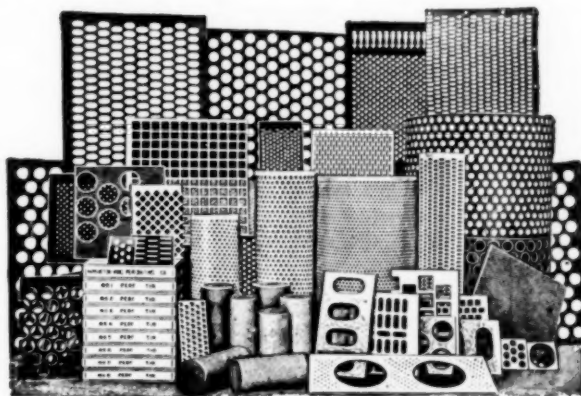
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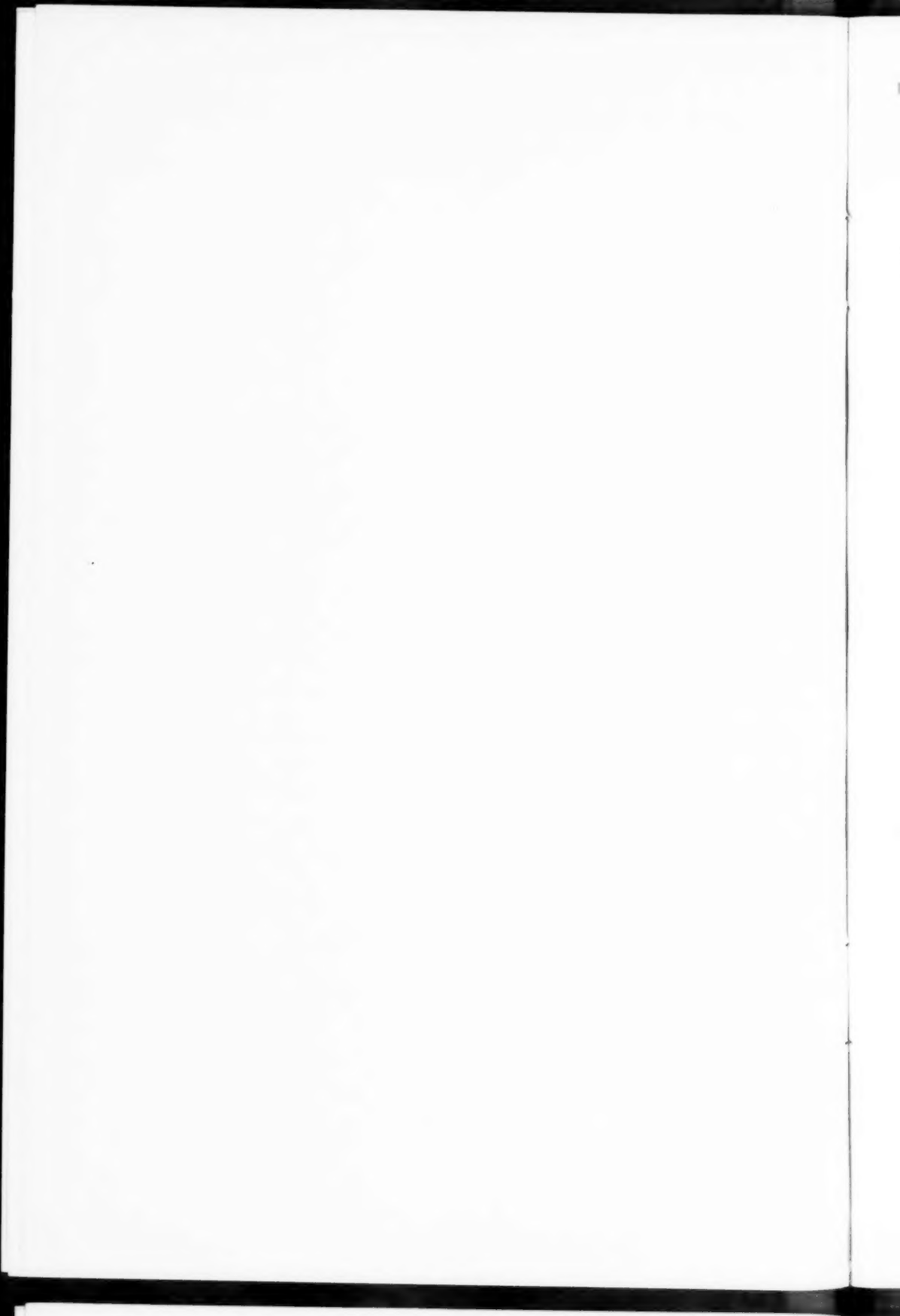
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